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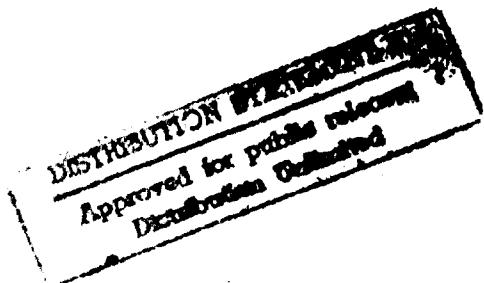
DLA-93-P10228

DIRECT SHIPMENTS TO
OVERSEAS CUSTOMERS

November 1992



OPERATIONS RESEARCH AND ECONOMIC ANALYSIS OFFICE



DEPARTMENT OF DEFENSE
DEFENSE LOGISTICS AGENCY

93-01258



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Cathy Arebalo

**DEPARTMENT OF DEFENSE
DEFENSE LOGISTICS AGENCY
OPERATIONS RESEARCH AND ECONOMIC ANALYSIS OFFICE
CAMERON STATION
ALEXANDRIA, VA 22304-6100**



DEFENSE LOGISTICS AGENCY
HEADQUARTERS
CAMERON STATION
ALEXANDRIA, VIRGINIA 22304-6100



DLA-LO

FOREWORD

This report documents a study of Direct Shipments to Overseas Customers. It was developed for the Defense Logistics Agency (DLA) Directorate of Supply Operations, Transportation Division (DLA-OT). Direct source loading of containers destined to overseas customers has the potential to shorten transportation times and save transportation dollars. This study was conducted to determine which customers, if any, could be considered for potential source loading from DLA supply depots. General Services Administration (GSA) depots were also reviewed since the data was available and GSA is now shipping through the overseas Container Consolidation Points. Based on the results of our analysis, we recommend that direct source loading of containers from the DLA depots not be considered at this time. GSA depots at Belle Meade, NJ, and Rough and Ready Island, CA, show potential source loads to 17 overseas customers. Source loading at GSA depots for these customers should be pursued with GSA. Reevaluation of potential DLA source loading is recommended once the Primary Distribution Site policy is implemented or data becomes available for former Air Force, Navy and Marine Corps supply depots. We wish to thank DLA-OT, Army Logistics Intelligence File, and GSA transportation personnel for their assistance in the completion of this analysis.

CHRISTINE GALLO
Deputy Assistant Director
Policy and Plans

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EXECUTIVE SUMMARY

This report documents a study of Direct Shipments to Overseas Customers developed for the Defense Logistics Agency (DLA) Directorate of Supply Operations, Transportation Division (DLA-OT). It is a review of DLA's capability to "source load" cargo containers for direct shipment to overseas customers. "Source loading" is defined as loading a cargo container with enough freight to generate a Container Load (CL) at a single shipper location destined to a single customer. The CL is then taken directly to the port of embarkation (POE) for shipment to the customer, bypassing Container Consolidation Point (CCP) processing. The study included freight generated at DLA, Army (now under DLA management), and General Services Administration (GSA) supply depots during an 18-week timeframe. Former Air Force, Navy, and Marine Corps supply depots were not reviewed because the requisition data for those depots was not available at the time of the study. We conclude that DLA shows little potential for source loading for direct shipment to overseas customers. This appears to be based on the fact that DLA stocks and distributes materials from multiple facilities with many facilities shipping to the same customers on a regular basis. Conversely, GSA has the greatest potential for source loading. This appears to be based on the fact that GSA stocks and distributes supplies from two primary facilities, one on the east coast and one on the west. The GSA facilities at Belle Meade, NJ, and Rough and Ready, CA, have the potential to source load 17 of the 18 potential source load customers identified. An additional analysis showed that these 17 customers accounted for approximately one third of the total weight originating from all of the GSA locations for the customers evaluated.

Our recommendations are that:

- (1) Direct source loading to the overseas customers from the DLA depots should not be considered at this time,
- (2) "Source Loading" should be reevaluated after implementation of the primary distribution site (PDS) concept.
- (3) A follow-on analysis should be conducted to determine which customers could be clustered/grouped efficiently around an overseas central Supply Support Activity or Break Bulk Point to more efficiently stuff container load or large less-than-container load shipments at the CCPs,
- (4) GSA shipments should be evaluated further to determine if any monetary savings accrue through "source loading" versus shipping through the CCP and,

- (5) Former Air Force, Navy, and Marine Corps supply depots should be evaluated to determine if there is a potential for "source loading" to overseas locations once data become available.

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SECTION 1

INTRODUCTION

The Defense Logistics Agency (DLA) Operations Research Office (DORO) was tasked by the DLA Directorate of Supply Operations, Transportation Division (DLA-OT) to identify overseas customers for potential source loading of cargo containers at DLA managed supply depots for direct shipment overseas. Source loading of cargo containers reduces the amount of handling necessary and enables the container to move directly to the port, bypassing Container Consolidation Point (CCP) processing. Source loading has the potential to shorten transportation times and reduce transportation expenditures.

1.1

BACKGROUND

Material destined for overseas customers comes from a number of DLA (includes former Military Service depots), General Services Administration (GSA), and vendor locations and is shipped to the customer by a variety of methods. The major method of shipment, however, is the seavan cargo container. Containers are generally loaded or "stuffed" as either a Container Load (CL), where a single shipper has enough freight going to one customer to occupy the entire container (usually known as "direct" or "source" loading) or Less-Than-Container-Load (LCL), where the container is used to carry a number of shipments from various shippers to many different customers. CLs are usually loaded at origin and moved directly to the port for shipment overseas. LCLs are generally stuffed at Government operated CCPs located at Sharpe Army Depot, CA, New Cumberland Army Depot, PA, and various Military Service operated locations, depending on the overseas destination of the cargo. Freight usually moves to a CCP by guaranteed traffic or commercial carrier. It is then consolidated with freight coming from other facilities based on the overseas port of debarkation (POD), geographic location, or load plan for the various overseas locations. Once loaded, CCP stuffed containers are then moved to the port by commercial truck for movement overseas. Shipping through the CCP requires considerable handling, is very costly, and should be avoided where possible.

1.2

SCOPE

The study covers routine priority material that has been or will be moving through the DLA operated CCPs on both coasts. This includes material originating at the six traditional DLA depots, six former Army depots (now under DLA control), and four GSA depots. See Table 2-1 for a complete list of depots included. The study was expanded slightly to include GSA depots when it was discovered that GSA freight comprised about 40 percent of material moving through the CCPs. Air Force, Navy, and Marine

Corps depots, now under DLA control, were not evaluated because the data was not available. It is not known what impact this will have on the outcome of the study.

The following criteria were used to determine the scope of data included in the study:

- (1) Only issue priority group (IPG) 3 and downgraded IPG 1 or 2 material that moved by surface transportation are included.
- (2) All traditional DLA, former Army (now under DLA control), and GSA source locations are considered and evaluated.
- (3) Foreign Military Sales (FMS) items are excluded.
- (4) Current force structures and the customer base in the U.S. Pacific Command (PACCOM), U.S. Southern Command (SOCOM) and U.S. European Command (EUCOM) are evaluated. However, the force structures in the U.S. European Command (EUCOM) are changing and data may not reflect accurate results.
- (5) Eighteen weeks of requisition/Material Release Order (MRO) data for routine priority surface freight obtained from DLA, Army, and GSA sources for the timeframe 1 June to 15 October 1991 are used in the analysis.

1.3

OBJECTIVE

Determine the Continental United States (CONUS) supply points generating sufficient amounts of freight to individual overseas customers to result in source loaded seavan containers for direct shipment to the customer. The cost of source loading shipments should be compared to the cost of shipping through a CCP to determine which method of shipment is the most economical.

SECTION 2 METHODOLOGY

Our initial approach was to use simulation to model the routine priority overseas shipment process. The model was designed to take requisition sets from the various depots and build direct loads to the port or route the material through the appropriate CCP, depending on the estimated shipment size and cost. The desired result was the ability to determine the least cost method of shipping to overseas customers. We found, after reviewing data from the DLA, Army, and GSA depots, that there were few, if any, DLA sites with enough potential "source load" customers. GSA had several potential "source load" sites, but GSA costs were not a factor in the analysis. Although the model was completed, there was no need to fully test or use it in the final analysis.

Our actual analysis was based on a review of the data to determine "source load" candidates and the depots from which they would originate. Several steps were completed to determine who the potential "source load" customers were. First, we identified the requisitions that were eligible for overseas source loading. Next, we determined by requisition count, the depots and geographic locations with significant volumes. Finally, we developed criteria for selecting qualified customers.

2.1 ELIGIBLE REQUISITIONS

Data were selected from the Army Logistics Intelligence File (LIF), GSA Transportation History File, and the DLA MRO File. The data were then combined to build the best representation of MROs destined to overseas customers for potential source loading. Any duplicate records among the three data files were eliminated based on the requisition document number. MROs were selected as eligible for overseas shipment if they met the following requirements:

- (1) The project code did not designate Operation Desert Storm supplies or other special projects of a high priority nature.
- (2) The required delivery date (RDD) did not indicate a high priority nature.
- (3) Shipments to Army customers were not designated as Air Line of Communications (ALOC).
- (4) The customer was positioned at an overseas location as of June 1992.

2.2

SELECTION OF DEPOTS AND GEOGRAPHIC AREAS

Frequency counts were performed on the file of eligible MROs. Those depots originating more than 500 MROs were included in the analysis. The depots listed in Table 2-1 meet this criteria.

Those overseas geographic areas with a substantial customer base were included in the study. Any geographic area receiving more than 1000 MROs was evaluated. The eligible geographic areas are listed in Table 2-2.

Table 2-1. Source Depots Evaluated

<u>DLA DEPOTS</u>	<u>ARMY DEPOTS</u>	<u>GSA DEPOTS</u>
DLA Mechanicsburg, PA	Sharpe Army Depot (AD)	GSA (Atlanta)
DLA New Cumberland, PA	Letterkenny AD	GSA (Ft. Worth)
DLA Ogden, UT	Red River AD	GSA (Belle Meade)
DLA Memphis, TN	Tobyhanna, AD	GSA (Rough & Ready)
DLA Columbus, OH	Tooele AD	
DLA Richmond, VA	Sacramento AD	

Table 2-2. Geographic Areas Evaluated

<u>EUCOM</u>	<u>PACOM</u>	<u>SOCOM</u>
England	South Korea	Panama
Germany	Japan	Cuba
Netherlands	Hawaii	Honduras
Belgium	Alaska	Puerto Rico
Azores	Ryukyu Islands	
Spain	Luzon Islands	
Greece		
Turkey		

2.3

CRITERIA FOR QUALIFYING CUSTOMERS

Our analysis found that extreme variation exists in the requisition process of overseas customers resulting in lack of consistency over time. In order for a requisitioner to be considered as a potential source load customer, it had to show consistency in the volumes of requisitions submitted over a long period of time. Three major factors were considered in qualifying a customer as consistently having large volumes of requisitions. They are as follows:

- (1) At least 10,000 pounds mean weekly weight was considered the minimum weekly weight to source load.
- (2) The standard deviation of the weekly weight had to be less than the mean weekly weight. This test was used to weed out those customers whose weekly weights were sporadic in nature.
- (3) The customer had to make requisitions on a regular weekly basis. Twelve out of 18 weeks was considered to be the minimum number of weeks in which requisitions must be placed by the customer.

SECTION 3 FINDINGS

Eighteen potential source load customers were identified as coming from three depot locations. The depots are Sharpe AD, CA; GSA - Belle Meade, NJ; and GSA - Rough & Ready, CA. The results of the data analysis are shown in Table 3-1. A list of addresses for potential source load customers are shown in the Appendix.

GSA has the greatest potential for source loading. This appears to be based on the fact that GSA stocks and distributes supplies from two primary facilities, one on the east coast and one on the west. The GSA facilities at Belle Meade, NJ, and Rough and Ready, CA, have the potential to source load 17 of the 18 potential source load customers identified. An additional analysis showed that these 17 customers accounted for approximately one third of the total weight originating from all of the GSA locations for the customers evaluated.

Conversely, DLA shows little potential for source loading. This appears to be based on the fact that DLA stocks and distributes materials from multiple facilities. Sharpe AD, the only DLA facility identified as having potential source loads, is co-located with the west coast CCP. Because of its close proximity to the CCP, very little savings in transportation time or dollars would be realized by source loading the sole customer identified.

**Table 3-1. List of Potential Source Load Customers
By Location and DODAAC**

DEPOT	DODAAC	MEAN TOTAL WEIGHT	MEAN WEEKLY WEIGHT	STANDARD DEVIATION WEEKLY WEIGHT	MIN WEEKLY WEIGHT	MAX WEEKLY WEIGHT	WEEKS OF MROS	# OF MROS/ WEEK
SHARPE AD	WT4KD5	498,081	27,671	15,643	2,223	65,700	18	94.50
DEPOT SUM		<u>498,081</u>						
GSA (BELLE MEADE)	WF6LJ4 WK4GBW WK4F9X WK4F8Q FB5587 FB4810 WK4GAC	595,544 571,681 386,267 348,389 268,489 221,652 185,419	33,086 31,760 21,459 20,493 14,916 13,038 10,301	30,499 28,862 19,065 19,416 13,915 11,215 10,097	521 3,624 1,510 0 27 0 12	138,966 110,498 64,934 62,564 38,921 37,180 37,196	18	23.44 96.61 70.06 70.00 54.44 23.82 50.67
DEPOT SUM		<u>2,577,441</u>						
GSA (ROUGH & READY)	N00651 N62649 WT4KDR N61119 FB5270 N00604 WT5JZ9 WT4KEA WT4KEE FB5240	2,398,907 2,054,333 1,415,766 922,342 918,879 719,227 334,134 306,464 211,363 207,154	133,273 120,843 78,654 51,241 51,049 39,957 18,563 17,026 11,742 11,509	125,496 99,193 41,498 41,897 32,202 38,037 11,883 11,579 6,075 10,123	1,551 0 22,309 13,454 3,269 83 2,725 2,211 1,118 404	403,072 395,979 153,233 153,597 102,573 156,472 41,390 47,277 22,460 32,800	18	124.22 117.71 149.67 64.17 161.22 32.72 50.67 74.44 92.67 80.50
DEPOT SUM		<u>9,488,569</u>						

SECTION 4 CONCLUSIONS

DLA shows little potential for source loading for direct shipment to overseas customers. This appears to be based on the fact that DLA stocks and distributes materials from multiple facilities with many facilities shipping to the same customers on a regular basis.

GSA has the greatest potential for source loading. This appears to be based on the fact that GSA stocks and distributes supplies from two primary facilities, one on the east coast and one on the west. The GSA facilities at Belle Meade, NJ, and Rough and Ready, CA, have the potential to source load 17 overseas customers. These 17 customers accounted for approximately one third of the total weight originating from all of the GSA locations for the customers evaluated.

SECTION 5 RECOMMENDATIONS

The following recommendations are made:

- (1) Direct source loading to overseas customers from the DLA depots should not be considered at this time.
- (2) "Source Loading" should be reevaluated after implementation of the primary distribution site (PDS) concept.
- (3) A follow-on analysis should be conducted to determine which customers could be clustered/grouped efficiently around an overseas central Supply Support Activity or Break Bulk Point to more efficiently stuff container load or large less-than-container load shipments at the CCPs.
- (4) GSA shipments should be evaluated further to determine if any monetary savings accrue through "source loading" versus shipping through the CCP.
- (5) Former Air Force, Navy, and Marine Corps supply depots should be evaluated to determine if there is a potential for "source loading" to overseas locations once data become available.

APPENDIX
CUSTOMER ADDRESSES BY DoDAAC

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DoDAAC	ADDRESS
+++++	++++++
FB4810	AF PANAMA LGS, HOWARD AFB, PANAMA
FB5240	633 ABW LGS, ANDERSEN AFB, GUAM
FB5270	18 SUPS LGS, MF FB5270, KADENA AB, JAPAN
FB5587	48 FW LGS, MF BASE SUPPLY, SEMBACH AB, GERMANY
N00604	US NAVAL SUPPLY CENTER, BLDG 475, PEARL HARBOR, HAWAII
N00651	US NAVAL SUPPLY DEPOT, SUBIC BAY, PHILLIPINES
N61119	US NAVAL SUPPLY DEPOT, GUAM MARIANA ISLANDS
N62649	US NAVAL SUPPLY DEPOT, YOKOSUKA, JAPAN
WF6LJ4	XR 41 LG HHC AREA SPT GP, SSSC, CRP BLDG 701, COROZOL, COROZAL REPUBLIC OF PANAMA
WK4F8Q	XR 7A TNG CMD DIV STK REPLN, GEBAUDE 113 ROSE BARRACKS, SUEDLAGER VISECK, 8453 VILSECK, GERMANY
WK4F9X	SR 26 CS CO SUP SVC DS, CL II IV VII, GROSSAUHEIM KASERNE, 6450 HANUA, GERMANY
WK4GAC	XR 24 CS CO, GAUENBERSTR PENDLETON BKS, GIESSEN, GERMANY
WK4GBW	XR 593 CS CO AK4424, ESELSFUERTH LAGER, KAISERSLAUTERN, GERMANY
WT4KDR	SR 305 CS CO SUPPLY POINT NR 51, CL II IV VII, SOBINGO, SEOUL, KOREA
WT4KD5	XR USA MAT SPT CEN KOREA CP CARROSPT ACTV, WAEGWAN, KOREA
WT4KEA	SR 20TH SPT GP HHC SRA SUP PTNO, CL II IV VII, WAEGWAN, KOREA
WT4KEE	SR 348TH S AND S CO STK REC ACCT, SUP PT NR 52, CL II IV VII, PYONGTAEK, KOREA
WT5JZ9	SR 17TH ASG HHC JAPAN, INSTL SUP DIV DOM UNIT 45006, SAGAMI, JAPAN

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	November 1992	Final
4. TITLE AND SUBTITLE		5. FUNDING NUMBERS
Direct Shipments to Overseas Customers		
6. AUTHOR(S) Cathy Arebalo		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) HQ Defense Logistics Agency Operations Research & Economic Analysis Office (DLA-LO) Cameron Station Alexandria, VA 22304-6100		8. PERFORMING ORGANIZATION REPORT NUMBER DLA-93-P10228
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) HQ Defense Logistics Agency Transportation Division (DLA-OT) Cameron Station Alexandria, VA 22304-6100		10. SPONSORING / MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES		
12a. DISTRIBUTION / AVAILABILITY STATEMENT Public Release; Unlimited Distribution		12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words) <p>This study documents a review of DLA's capability to "source load" cargo containers for direct shipment to overseas customers. "Source loading" is defined as loading a cargo container with enough freight to generate a Container Load (CL) at a single shipper location destined to a single customer. The CL is then taken directly to the port of embarkation (POE) for shipment to the customer, bypassing Container Consolidation Point (CCP) processing. The study included freight generated at DLA, Army (now under DLA management), and GSA supply depots during an 18 week timeframe. Former Air Force, Navy, and Marine Corps supply depots were not reviewed because the requisition data for those depots were not available at the time of the study.</p>		
14. SUBJECT TERMS source loading, containerization, container consolidation point		15. NUMBER OF PAGES 25
		16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED
		20. LIMITATION OF ABSTRACT